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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,442	06/30/2003	Yu Wang	NPO 20821-1-CU	8197

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EXAMINER	
YAM, STEPHEN K	

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/612,442	WANG, YU	
	Examiner	Art Unit	
	Stephen Yam	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-9 and 15-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *3-6 and 15-18* is/are allowed.

6)☒ Claim(s) *7-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to Amendments and remarks filed on August 8, 2005. Claims 3-9 and 15-18 are currently pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Immega et al. US Patent No. 5,726,443.

Regarding Claim 7, Immega et al. teach (see Fig. 1-3) a device comprising a plurality of narrow angle filters (4) (see Fig. 1 and 3) comprising a microchannel structure (see Fig. 3) to permit the passage of only unscattered radiant energy through the microchannels (see Col. 3, lines 62-67), the microchannel structure having a first end (bottom) and a second end (top), a solid-state sensing array (2a) (see Fig. 1, and Col. 14, lines 3-6) comprising a plurality of sensing elements (1) attached to the first end of the microchannel structure (see Fig. 3), the sensing elements being sensitive to radiant energy (see Col. 14, lines 3-5), a plurality of the microchannels being aligned each to correspond with an individual sensing element of the solid-state sensing array (see Fig. 3), a plurality of emitters (33) (see Col. 15, lines 13-14) for emitting radiant energy mounted on the second end of the microchannel structure (see Fig. 2 and 3), comprising a size and a mounting location (see Fig. 3) to prevent unreflected light from entering

the microchannels (since there is no direct optical line between the emitter 33a and the microchannels, light must be reflected off a surface of 32, or the object 39 before entering the microchannels, as exemplified by the light beam arrows emanating from 33a in Fig. 3) the emitters illuminating the surface of a sample (see Fig. 2 and 3 and Col. 15, lines 14-19), some portion of the radiant energy being reflected by the sample to enter the microchannels (see Col. 15, lines 18-20), that portion of the radiant energy entering the microchannels that is parallel to the microchannel walls travels to the sensing elements (see Fig. 3) to generate electrical signals that can enable an image to be reconstructed by an external device (27) (see Col. 14, lines 18-23), and a transparent planar member (31) adjacent to the second end of the microchannel structure, the transparent cover protecting the second end of the microchannel structure from damage and preventing the entrance of foreign objects into the microchannels (see Col. 15, lines 8-10). Although the device of Immega et al. is not directed towards a solid-state scanning microscope, Applicant's claim language does not provide any structural limitations limiting the device to a solid-state scanning microscope- therefore, the limitation in the preamble of the device as a solid-state scanning microscope is directed towards an intended use of the device, and hence, cannot be given patentable weight. Immega et al. do not teach the emitter as a solid-state emitter or the transparent covering containing conduction paths to conduct power to the solid-state emitters. It is well known in the art to use solid-state emitters, to provide optimal illumination with reduced power consumption, and to provide conduction paths, as appropriate, along any part to conduct power to other components, to enable the powering of all the electronic components within the device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the emitters as solid-state and provide conduction

paths on the transparent cover to conduct power to the solid-state emitters in the device of Immega et al., to provide optimal illumination without excessive power consumption and to provide accessible electrical coupling points for easier electrical connection to the components of the device.

Regarding Claims 8 and 9, Immega et al. teach the device in Claim 7, according to the appropriate paragraph above. Immega et al. do not teach the solid-state emitters as light emitting diodes or light emitting polymers. It is well known in the art to provide a variety of light sources for providing illumination in a system, depending on the desired type of illumination and other cost or design considerations, and that light emitting diodes and polymers are common light source components. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the solid-state emitters as light emitting diodes or light emitting polymers in the device of Immega et al., to select a common light emitting component which provides stable illumination and efficient power consumption.

Allowable Subject Matter

3. Claims 3-6 and 15-18 are allowed over the prior art of record.

4. The following is a statement of reasons for the indication of allowable subject matter:

Regarding Claim 3, the invention as claimed, specifically in combination with the planar member allowing for an air-gap between the planar member and the microchannel structure, an index matching fluid placed adjacent to the second side of the planar member, the index matching fluid being matched to the index of the planar member, the index matching fluid

continuously filling the region between the surface of the sample and the second side of the planar member, and a prism placed upon the planar member so as to conduct the source of radiant energy operatively into the planar member, is not disclosed or made obvious by the prior art of record.

Regarding Claim 15, the invention as claimed, specifically in combination with a scanning stage for providing structural support for moving the microscope, an emitter having a first side and a second side, the first side of the emitter radiating energy, the second side of the emitter mounted to the first side of the scanning stage, a waveguide having a first end, a second end, and an internally reflective surface, the first end of the waveguide being attached to the first side of the solid state emitter allowing radiant energy from the solid-state emitter to enter into the waveguide to be reflected by the internally reflective surface, the reflected radiant energy exiting at the second end of the waveguide, with the sensing element adjacent to the solid state emitter, is not disclosed or made obvious by the prior art of record.

Regarding Claim 17, the invention as claimed, specifically in combination with a scanning stage for providing structural support for moving the microscope, a plurality of solid-state emitters for radiating energy, the wavelength of radiant energy of a predetermined number solid-state emitters is of at least two substantially different wavelengths, a plurality of waveguides, each waveguide having a first end, a second end, and an internally reflective surface, the first end of each waveguide being attached to the first side of a solid state emitter allowing radiant energy from the solid-state emitter to enter into the waveguide to be reflected by the internally reflective surface, the reflected radiant energy exiting at the second end of the waveguide, and a plurality of beam splitting elements, each beam splitting element adjacent to

the second end of the waveguide and near a sample, the beam splitting elements each having a first side, a second side, and a third side, wherein the first side of each beam splitting element is perpendicular to the sample and receives the reflected radiant energy from the waveguide and conducts the radiant energy to exit the second side of the beam splitting element, the second side of the beam splitting element being adjacent to a sample and directing a portion of the radiant energy to the sample and receiving some portion of the radiant energy reflected by the sample, the third side of the beam splitting element being opposite the second side of the beam splitting element and adjacent to the second end of the microchannels, the third side of the beam splitting element directing some portion of the reflected radiant energy to enter the microchannels, some portion of the radiant energy being reflected by the sample to enter the microchannel, is not disclosed or made obvious by the prior art of record.

Response to Arguments

5. Applicant's arguments filed August 8, 2005 have been fully considered but they are not persuasive.

Regarding Applicant's arguments on Claim 7, Applicant indicates:

"Regarding claim 7, the examiner indicates that Immega et al. discloses all of the elements of this claim with the exception of teaching radiant energy as collimated or use of a waveguide for conducting the radiant energy to the sample. The examiner continues by asserting that 'it is well known in the art to provide collimated illuminating

> light in an imaging system... to provide the ability to locate the light source in a remote or external location.' First applicant notes that the embodiment of the invention of claims 7-9 do not include a waveguide." *(Page 9, 1st full paragraph of Applicant's response).*

Examiner asserts that in the prior (and current) Office Action, the rejection of Claim 7 did not and does not recite Immega lacking the teaching of collimated radiant energy or a waveguide, and Examiner made no assertion for providing collimated radiant energy or a waveguide for rejecting Claim 7. Rather, such an assertion was used for Claim 1 in the prior Office Action (now moot, as Claim 1 is cancelled by amendment), and Examiner relied on the assertion that it is well known in the art to use solid-state emitters to provide conduction paths for rejecting Claim 7.

Applicant also argues that Immega only teaches a single light source and not a plurality of emitters, and the light source located to the side of the microchannel structure, not on an end as required by the claims. Examiner asserts that Immega teaches that "Illumination may be introduced laterally from one or more light sources 33 mounted about the reader" (Col. 15, lines 13-14). Therefore, although Fig. 2 and 3 depict a single light source (presumably to maintain the simplicity of the drawing), providing multiple light sources are taught by Immega. Examiner further asserts while the light source (33/33a) in Fig. 3 is located on a side of the microchannel structure, it is mounted on the second end (top end) of the microchannel structure, in particular, the top surface of the microchannel structure.

Applicant further argues, if it were well known in the art to use solid-state emitters or the transparent cover containing conduction paths to conduct power to the emitters, why would

Immega et al., who obviously would be considered at least skilled in the art, not describe, disclose, or use such elements, and contends that there is no impetus as to why one skilled in the art would modify Immega in order to obtain Applicant's invention. Examiner asserts that, while Immega is skilled in the art, it is clearly not conceivable to disclose all possible alternative implementations and features, as it should be expected that one of ordinary skill in the art would be enabled to provide common and obvious modifications to tailor the invention to one's specific specifications and design considerations. Moreover, the definition of "one of ordinary skill in the art" is not limited any one particular inventor or individual, and just because Immega does not disclose a particular teaching does not mean that *another* one of ordinary skill in the art cannot modify the invention according to a known teaching. Examiner further asserts that the use of *solid-state* light sources over conventional light sources such as incandescent bulbs, is widely utilized to reduce heat, power consumption, and reduced risk of component damage from physical abuse, and the use of conduction paths to conduct power to the emitters, such as a printed circuit or wiring board, is commonly used depending on the location of the power source in relation to the emitter. Therefore, motivation visibly exists to enable such modifications to the Immega invention, to provide for the improved operation of the device.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (571)272-2449. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571)272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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THANH X. LUU
PATENT EXAMINER

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